

News

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## **Engineering team looks to eliminate phone echoes**

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By Amy Sue Heaton

Those annoying echoes that cell phones sometimes make may soon be gone for good.

Utah State University professor Jacob Gunther is currently doing research for USU's Center for High-speed Information Processing to eliminate echoes in cell phones and speakerphones. Echoes are defined by Gunther as sound coming out of the speaker and eventually returning back into the microphone.

The reason the echoes are happening is because the speaker and the microphone in the phone systems are built too closely together, Gunther said.

Echoes aren't necessarily the problem, Gunther said, the real problem is called half-duplex.

Half-duplex is the inability for two people to speak at the same time. Gunther said the problem is mainly found in speakerphones and cellular phones. Echo cancellers came out around the 1960s, but haven't been able to completely solve the problem because they cannot allow people to talk at the same time. Cancellers try to work, but eventually move into half-duplex mode. Gunther said they have invented a way to cancel echoes during double talk, which is two people talking at the exact same time.

Gunther and doctoral student Song Wang have been working on the project. Gunther said he has been researching and working on this project for about five years, but said he will continue to work on it because technology is constantly moving forward.

He said he had no history in working with cellular phones, but came up with the echo cancellation idea years ago by combining ideas to make the system work. Their research is generally funded by the Center for High-speed Information Processing (CHIP).

Cell phones in cars are a really dangerous problem Gunther said. Many people completely lose concentration of the road with this type of technology developing, cell phones may just be advanced enough to make roadways safer.

"I think it would be great to take echoes off of people's phones," said Christina Zaccheus, a sophomore studying nursing. "Sometimes when I talk, it will start echoing and it's hard to focus on your conversation when you hear yourself talking."

Zaccheus said she would really appreciate if someone could find a solution to cellular phone echoes.

Wang is very experienced and skilled to participate in this type of experiment. Wang said he prefers working on real things as opposed to mathematical abstractions.

He said before he came to USU, he was an engineer for three years in China.

Gunther said Wang has been, and will continue to be, a great asset to the project.

The research has recently had a breakthrough, Gunther said. The current section of the project is almost completed. Gunther said he would like to soon see speakerphones with the new canceling technology on the market.

Though this part of the research may be completed, Gunther said, their research will continue on as technology moves forward.

"The world in which we live could be very different because of this," Gunther said explaining how the echo canceller can change technology as the world knows it.

Gunther explained if a solution is found, it can have a direct effect on everyone's general appliances including radios, television sets and many other electronic devices.